

## CONVERSATIONS

### New Program

IN THIS CITY OF BIG STARS AND BIG TALKS, STOREFRONT BEGINS A SERIES OF DOWN TO EARTH AND INFORMAL DISCUSSIONS ABOUT ART AND ARCHITECTURE. TAKING PLACE IN CAFE ARCHITETTURA, JUST AROUND THE CORNER FROM STOREFRONT, CONVERSATION INVITES A WIDE RANGE OF INDIVIDUALS TO DISCUSS AN ASSORTMENT OF URGENT ISSUES OVER DINNER AND COFFEE. SURE, LECTURES, PANELS, CONFERENCES, SYMPOSIA ARE IMPORTANT IN THEIR OWN RIGHT, BUT CONVERSATION HOPES TO CREATE A MORE INTIMATE ENVIRONMENT FOR THE EXCHANGE OF IDEAS DRIVING CURRENT CONCERNS IN ART, ARCHITECTURE AND CULTURE.

### Menu

7pm

Appetizer

Entree

Coffee

8pm

Conversation begins

Ticket \$15

### MARCH 14, MONDAY, 7PM

**Manuel De Landa**  
film-maker and author

*Artificial Life*

The author of *War in the Age of Intelligent Machines* and *Axylons: 1000 Years of Nonlinear City* (1995) has been a controversial critic on the effect of emerging intelligent

and autonomous weapons upon culture, specifically, on our bodily and urban sites. The subject of this conversation will be a series of revisions in our biotic conceptions, from Aristotelian "ideal type" to Darwinian "survival of the fittest" to genetic algorithm based "survival of the stable." He will talk about how computers, that generate virtual environments, can issue a complementary positioning of nonlinear dynamics with population theory, when combined, giving a true dimension of the new discipline of "artificial life."

### MARCH 28, MONDAY, 7PM

**Laure Kurgan**  
architect

*You Are Here: Information Drift*

The current exhibitor at StoreFront, will discuss the ways in which maps work to provide information, including the relationship between maps as information and the spaces they seek to portray—the investigation of the spatial characteristics of its information. Her installation at StoreFront, *You Are Here: Information Drift*, which created a digital drawing of StoreFront itself through the use of Global Positioning Satellites (GPS), Head Up Display (HUD) and Geographic Information Systems (GIS) will also be discussed in more depth.

### April 11, Monday 7pm

**Mel Chin**  
artist

*What can I say, etc.*

This experimental discussion, according to Chin, derives from his recent surveying of garbage cans at different airports. An independent artist, neither sculptor nor painter, yet probably both, has over the years attempted to integrate the making of art with environment in participatory ways. Recognizing that the limitation in art is more than site and space, such

as galleries and inside, Chin seeks different ways to infiltrate and subvert the making of common spaces of culture and its ecology. Taking a cue from his *Revival Fields*, a sculptural and scientific planting of hyper-accumulating plants that extract highly toxic and metallic wastes from the ground, Chin is now entering the media to create special public service announcements called *Rage/Rap*. Discussion will be on the complexity and conditions that harbor and perpetuate racism in America, which is largely funneled through the powerful Media. The question is, can television be used to undermine its genetic tendency to stereotype our race relations, and be used to challenge our attitude and behavior to wave an active social transformation.

**All events at**  
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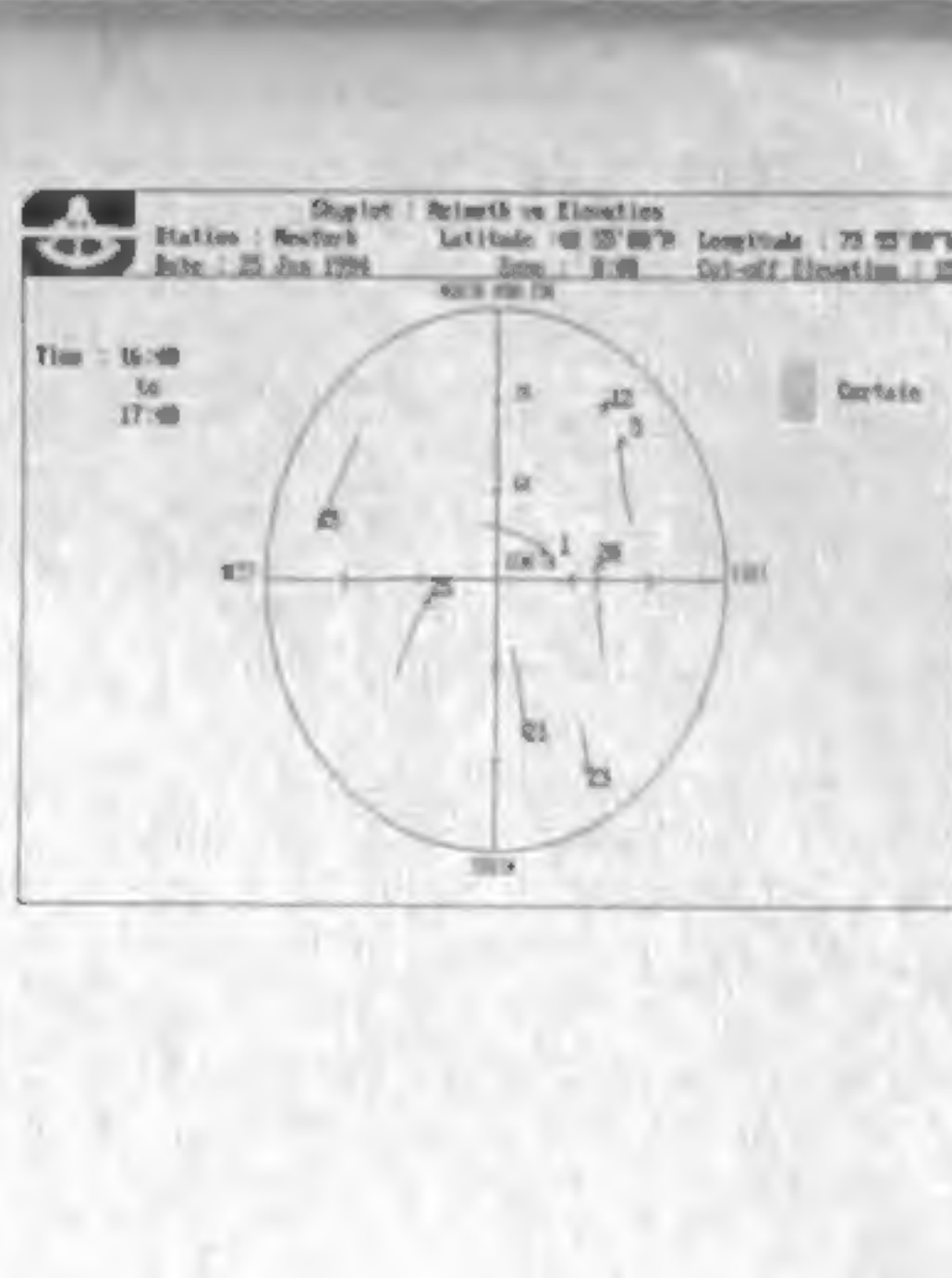
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# YOU ARE HERE

## Information Drift



## LAURA KURGAN

12 March to 16 April 1994

GALLERY HOURS: Tuesday - Saturday 11-6pm  
Opening Reception: March 12, 6-8pm

Funding for this exhibition has been provided by:

GRAHAM FOUNDATION FOR ADVANCED STUDIES IN THE FINE ARTS, GREENWALL FOUNDATION, AND JEROME FOUNDATION

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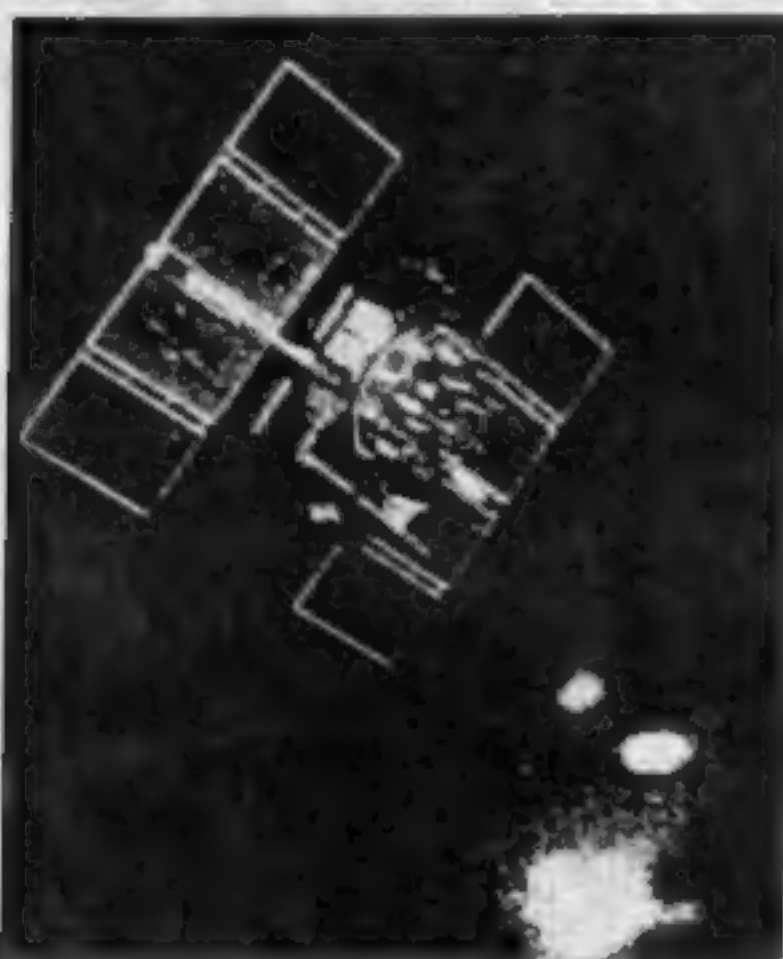


## You Are Here Information Drift

O. WHERE AM I?  
A. YOU ARE HERE.  
40.5° 43' 17.27" N, 73.5° 55' 49.54" W

That a specification of this answer can now be provided, to an accuracy of within one centimeter, anywhere on the globe, has become a commonplace of many journalistic accounts of the Global Positioning System. "The GPS," reported The Wall Street Journal recently, "is the most accurate navigation and targeting system ever devised." Or as one manufacturer puts it, "everyone will have the ability to know exactly where they are, all the time."

*You Are Here* makes use of this satellite-based technology to investigate some of the structural complexities of the drive to orient or to position, and to navigate in turn the strange interface between the information space of the digital map and the space it claims to represent. The aim is to analyze the spatial characteristics of the map and its technology, which is to say the architecture of its information, and their effects on the spaces through which the map guides its users. The "here" of a map, and maps always presuppose some sort of orienting



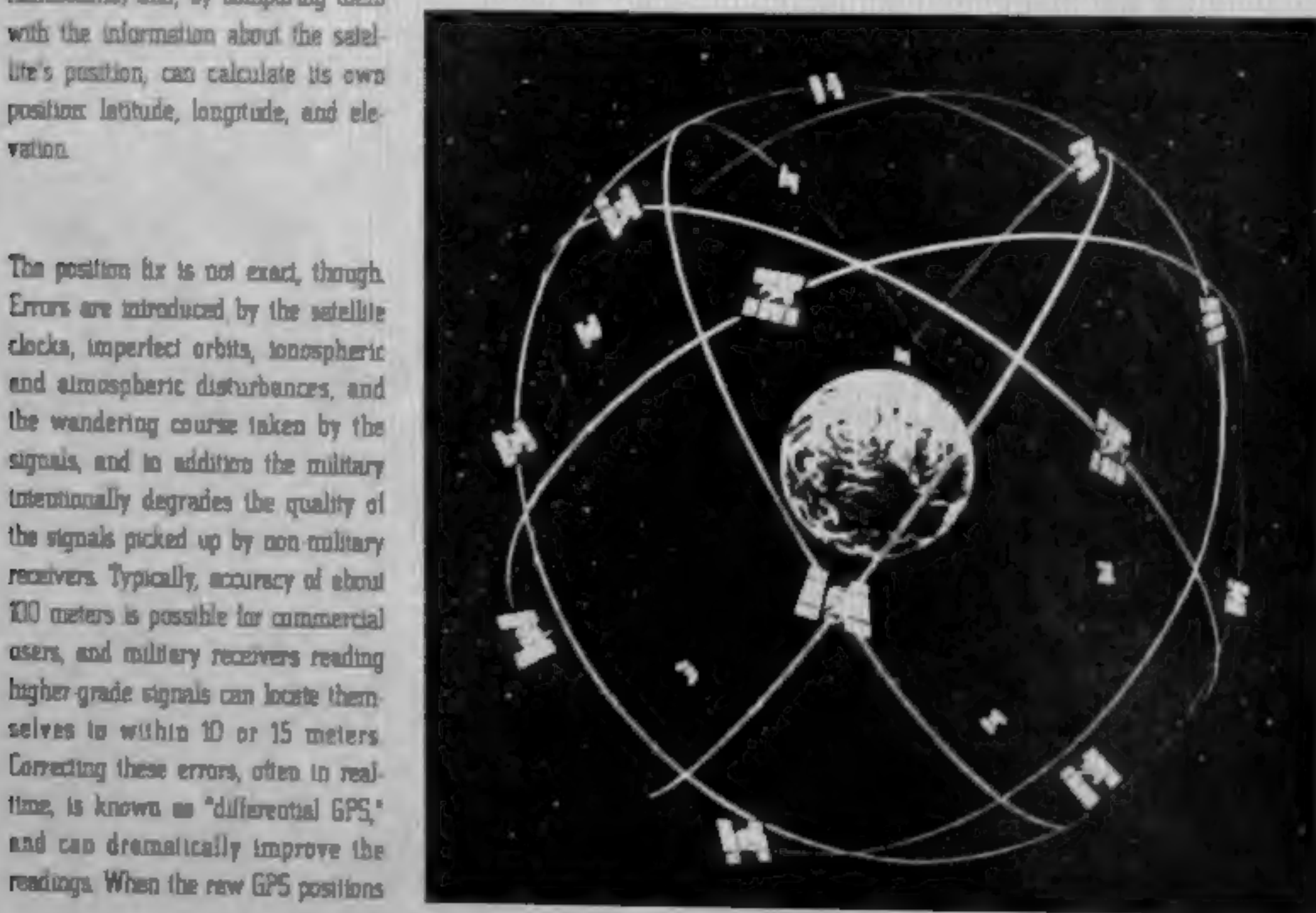
GPS SATELLITES

Name NAVSTAR  
Manufacturer Rockwell International  
Altitude 10,900 nautical miles  
Weight 1900 lbs (in orbit)  
Size 17 ft with solar panels extended  
Orbital Period 12 hours  
Planned Lifespan 7.5 years  
Number built 11 block I prototypes  
28 block II production satellites  
Constellation 24 satellites  
COURTESY OF TRIMBLE NAVIGATION

"You are here," is quite another thing from the "here" of the city or the desert, and drifting in the information zone of the map can yield a sharply different experience of space.

How do maps, as information, and the display systems that increasingly make them available, not simply represent but actively construct a space? When "you are here" on a map, through what sort of space do you move, and what sort of movement is possible there? These questions, however abstract, cannot be answered only formally or to principle—they demand examples, maps and information zones themselves, and with them the particular experiences of orientation and dis-orientation possible to data space. "You Are Here" will try to pose some of these questions, to do at least two things at once: challenge the hegemony of the locative drive, and explore the odd transparency and disjunction between earth and data space.

The Global Positioning System depends on a constellation of 24 satellites launched by the Department of Defense, beginning in 1977, at a cost of about \$12 billion. Since it became fully operational this past July, the system enables precise instantaneous positioning in any weather, at any time, and in any location—whether for soldiers in the desert, cruise missiles in flight, or ships at sea. The Navstar satellites, which circle the earth on six orbital paths once every twelve hours, at 20,200 kilometers above its surface, function as something like synthetic stars for any user equipped with a receiver. Tracked and guided by a ground network of five control and monitoring stations, the satellites constantly broadcast precise position and time signals. The receivers, some of which are small enough to hold in one hand, work like portable radios or satellite dishes. A GPS receiver which can "see" four of these satellites at once—and the orbital paths are plotted such that, barring obstructions, four satellites are always in view anywhere on earth—can measure the time the signals take to reach it (moving at about a foot per nanosecond) and, by comparing them with the information about the satellite's position, can calculate its own position: latitude, longitude, and elevation.



The position fix is not exact, though. Errors are introduced by the satellite clocks, imperfect orbits, ionospheric and atmospheric disturbances, and the wandering course taken by the signals, and in addition the military intentionally degrades the quality of the signals picked up by non-military receivers. Typically, accuracy of about 100 meters is possible for commercial users, and military receivers reading higher-grade signals can locate themselves to within 10 or 15 meters. Correcting these errors, often in real time, is known as "differential GPS," and can dramatically improve the readings. When the new GPS positions

are in turn measured against GPS readings from a known location within sight of the same satellites, the systematic errors in the signals reaching both receivers can be identified, and the position specified with even greater accuracy. "Differential correction" can bring even ordinary commercial receivers to accuracies of within 2 to 5 meters, and civilian users with very sophisticated equipment can correct the measurements of their locations down to centimeters. With a radio link between the remote or "rover" location and the reference point, these readings can be made in real time.

A GPS receiver located, for the duration of the installation, on StoreFront's roof transmits uncorrected real-time position readings to a computer in the gallery, providing a constantly updated feed of the receiver's positioning information. In addition, two different sets of GPS readings have been generated earlier on the roof of StoreFront for Art and Architecture, both recording a line drawn parallel to the storefront of StoreFront: a set of five static points, recorded over the course of an hour on 25 January, and a line walked for a little more than a minute on 14 January. These position readings have been differentially corrected with data downloaded from the New Jersey Department of Environmental Protection and Energy community base station in Trenton, and the readings are accurate within a range of about 5 meters, or 15 feet. The corrected data have been manipulated and interpreted with mapping

and analysis software, which translates the position readings into the visual forms and conventions of mapping or architectural drawing. Of course, StoreFront is a small site, and the superimposition of a plan of the building over the GPS map shows that much of the building disappears within its range of error. These positioning data provide the immaterial substance of the installation: real-time readouts on display screens, the genealogy of the corrected positions as well maps, and the readings themselves inscribed on the physical surfaces of the building itself.

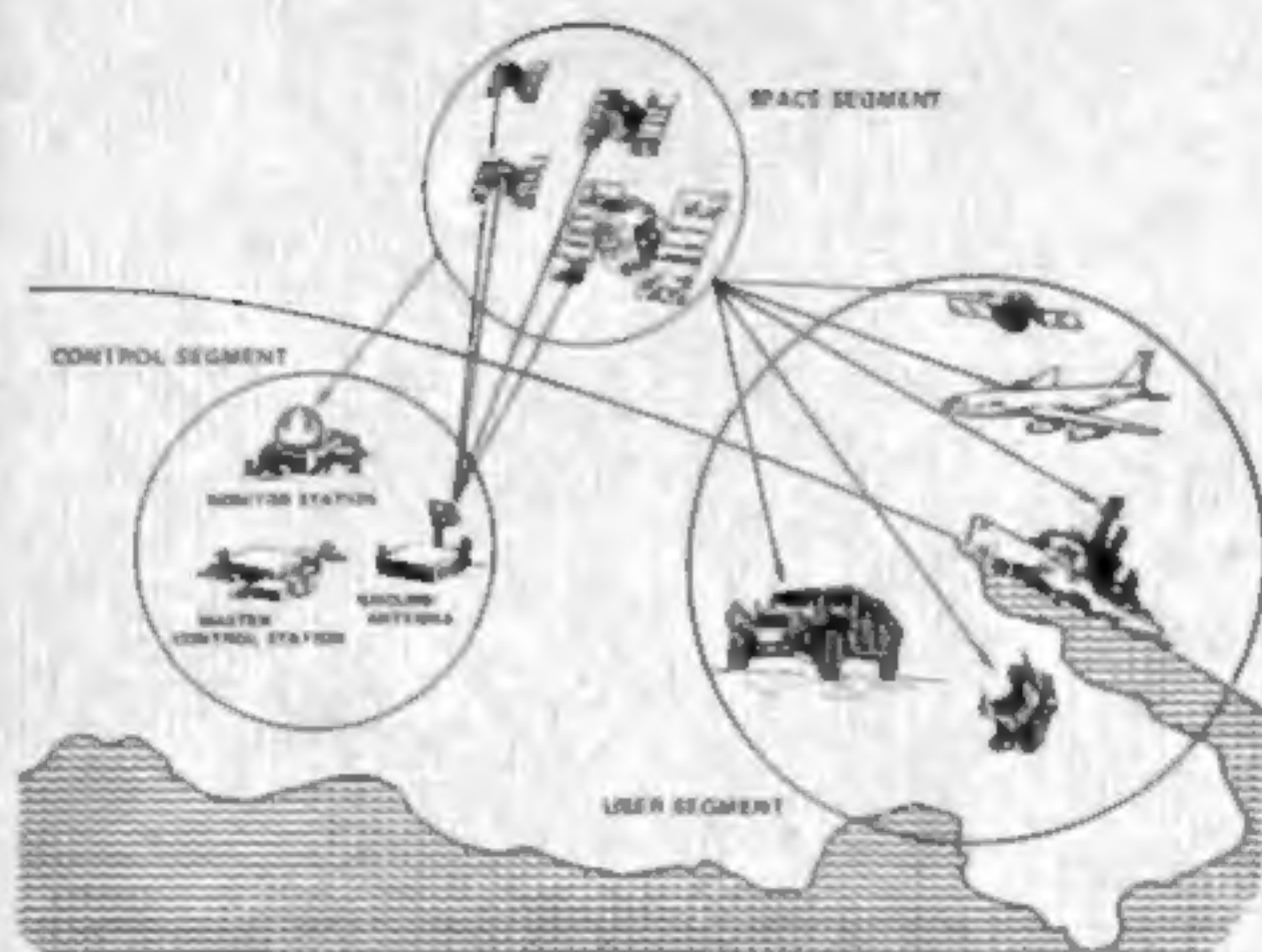
The GPS-generated map—or StoreFront or the city, or anywhere, thought not as a network of sites but a network of information—charts a series of drifting pathways across a terrain. GPS location data, always a series of points, require that both movement and stasis be registered as drift in the zone of information, and the map user operates in an unusually layered, parallel or paradoxical space, as if data and earth were of once independent of and somehow transparent to one another. The very elements of architecture—points, lines, and surfaces—all find themselves transformed and redefined in the intersections of this network. This scaleless information zone constitutes not simply the representation of a pre-existing space—as if built or physical space had some ontological or ethical priority—but another space altogether. The possibilities of disorientation, not in the street but precisely in the database that promises orientation, are of an entirely different order, and GPS offers the chance to begin mapping some of these other "highways" as well: drift in the space of information.

The real-time GPS readouts, uncorrected raw positioning data from a receiver located on the roof of StoreFront, are displayed on a modified head-up display (HUD) screen, an imaging device used to project information onto a transparent sur-

### THE DEPLOYED CONSTELLATION

The GPS Space Segment, which fully operational, consists of 21 operational satellites. To ensure system availability, up to three additional satellites will be ordered as active spares. The satellites are placed in six orbital planes with three or four operational satellites in each plane. The satellite orbital planes have an inclination relative to the equator of 55 degrees and the orbit height is 20,000 km (10,900 miles).

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The control segment consists of one Master Control Station (MCS) at Falcon AFS in Colorado Springs, USA, plus monitor stations at the MCS, Hawaii, Kwajalein, Diego Garcia and Ascension. All monitor stations except Hawaii and Falcon are also equipped with ground antennas for communications with the GPS satellites. The monitor stations passively track all GPS satellites in view, collecting ranging data from each satellite. This information is passed on to the MCS where the satellite ephemerides and clock parameters are estimated and predicted. The MCS periodically uploads the ephemerides and clock data to each satellite for retransmission in the NAV-mag.

COURTESY OF U.S. COAST GUARD

face in daylight. The data are registered against a digital map of StoreFront's New York location. Another HUD unit overlays the track of the satellites used in the drawings on to a wall image of the GPS readout. In military aircraft, head-up or helmet-mounted displays allow pilots to read flight data, navigation information, or targeting data without turning their gaze away from the windshield. Digitized data are superimposed on exterior views. Here, the GPS information is first displayed on a computer monitor and then relayed through mirrors and optically focused at infinity on clear glass screens, obliging the user to focus on the view beyond in order to read or see at the same time the information on the screens. The transparent screens dematerialize the depth of the monitor into the simple flatness of the data it displays, a text made only of light, and overlay that inscription, as another layer in a network of relays, into the world of walls and people and objects. The displays create an interface between the data space of the map and the world it wants to chart. The HUD system offers, to the banal flatness of its screens, another strangely layered space, at once reflective and transparent, and thus rebids the spatial paradoxes of the GPS mapping system anew. Fixing a gaze on the world is at once the condition of possibility of reading the map on the screen and entirely at odds with drifting in that information zone.

GPS is being spoken of today as nothing less than a "revolution in consciousness," in a discourse that raises the question of the difficulty of knowing one's location only in order to promise that it can finally be solved. The lure of exact location readings in real-time for everyone has itself been spun off from the more evident military applications—target acquisition and weapons delivery, logistics, covert rendezvous, and in-flight missile or aircraft guidance are just a few of the uses envisioned in NATO's 1991 Navstar GPS User Equipment manual—to a host of civilian uses: flying and landing commercial aircraft, in-car navigation, surveying and mapping, and police and fire emergency response. And the promise of "pinpoint accuracy" under any conditions has proven to be a powerful journalistic trope. The LA Times has reported on GPS geologists charting the movement of mountains after the Northridge earthquake. The New York Times suggests that GPS aircraft guidance is "expected to prevent the recurrence of an airliner flying over hostile territory, as KAL 007 did... when it was shot down by Soviet fighters," and The Wall Street Journal has warned of the threat of a "poor-man's cruise missile" that would use freely available GPS technology "to direct cheap, accurate missiles" at targets on U.S. shores.

"Probably right from the time man got up on his hind legs and started to wander around the earth he's been looking for some simple way to figure out where he was and where he was going," begins a handbook on GPS from a leading equipment manufacturer. This "basic problem"—call it disorientation—has now been solved with GPS: that's the promise. "With today's integrated circuit technology, GPS receivers are fast becoming small enough and cheap enough to be carried by just about anyone. That means that everyone will have the ability to know exactly where they are, all the time. Finally, one of man's basic needs will be fulfilled. Knowing where you are is so basic to life, GPS could become the next utility."

Ubiquitous—"as basic as the telephone"—because capable of removing the obstacles that physical distances and differences introduce, GPS answers to powerful fantasies and desires, and

The GPS comprises three major segments, Space, Control and Users. The Space Segment consists of a constellation of GPS satellites in semi-synchronous orbits around the earth. Each satellite broadcasts radio-frequency (RF) ranging codes and a navigation data message. The Control Segment consists of a Master Control Station (MCS) and a number of monitor stations located around the world. The MCS is responsible for tracking, monitoring, and managing the satellite constellation, and for updating the navigation data messages. The User Segment consists of a variety of radio navigation receivers specifically designed to receive, decode and process the GPS satellite ranging codes and navigation data messages.

COURTESY OF U.S. COAST GUARD

offers new myths of total transparency. "Everyone will have the ability to know exactly where they are, all the time." GPS really allows every square meter of the earth's surface to have a unique address," suggests one manual, while another promises that when real-time centimeter accuracy "is achieved, it will, in a sense, be like carpeting the entire globe with graph paper, because suddenly our instruments will be able to measure any point on earth to that accuracy."

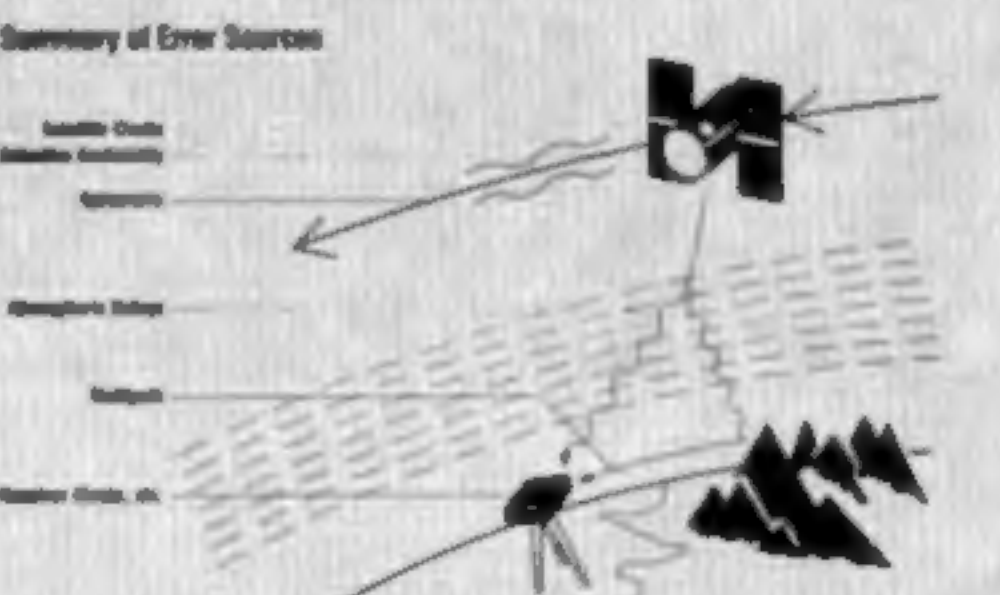
A recent announcement for a GPS software package promises that it can finally deliver a reliable answer to the questions which continue to plague even the users of very powerful maps: "Which pixel am I standing on?" or worse, "Where am I?" Not "where am I?" on the earth, but where on the map? At a time when these digital technologies seem to offer great leaps in our ability to locate ourselves—GPS and computerized maps not only in airplanes but in passenger cars and homes: "You'll never get lost again," suggest the ads—and when not only frightened urbanites but some of our most radical social critics are bemoaning our new-found failures to cognitive mapping (Jameson), a critical analysis of new mapping technologies seems imperative. But perhaps the sense of what's "worse," conveyed by the GPS announcement needs to be rethought: the older and perennial question of "Where am I?" the question that gives rise both to panic and to new discoveries, has been replaced or displaced by a still stronger interrogative: "Which pixel am I standing on?" What could it mean to stand on a pixel? Who or what stands in or on the data space of a pixel? How can we begin to think the interface between that oldest of human occupations, standing upright, and the new consciousness of pixelated data and imagery?

The difficulty of charting the spaces that chart the spaces, of asking "where am I?" in cyberspace, is to provide an answer that does not simply think about data space in terms derived from three-dimensional or physical space. Mapping the invisible lines and the scaleless networks of the very system that promises finally to end our disorientation will demand redefining the lines that build the map, and spending time inside the in/finite spaces they generate. We are drawing lines with satellites, not to pinpoint a location but to experience the drift and disorientation at work in any map or any architecture—especially the architecture of information.

### Laura Kurgan

SPECIAL THANKS TO: SIRHAN FERRER, SCOTT PATTERSON, DANIEL PETERSON, KIM SALAMON, JEFF TETTERBAUM, LINN WATTS AND ALLAN WHITE. AND THANKS TO SERGIO BREGANTE, TOM KEDAN, LARRY ROY, JAMES LUBER AND BETTINA VISMAR, FOR THEIR DEDICATED WORK ON THIS PROJECT.

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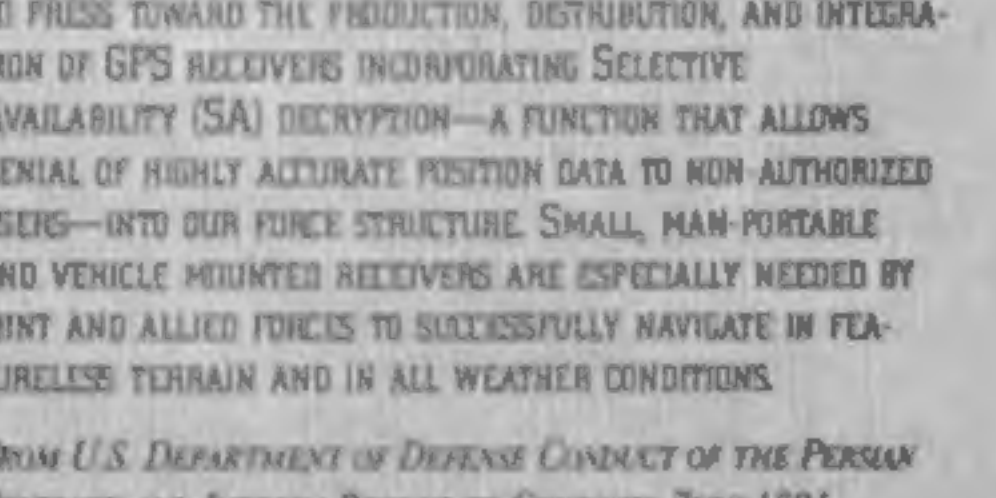
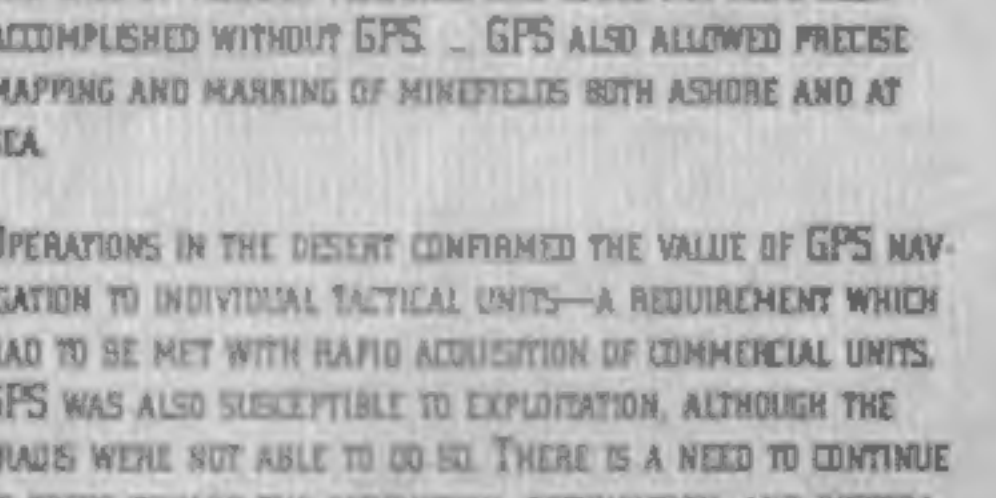
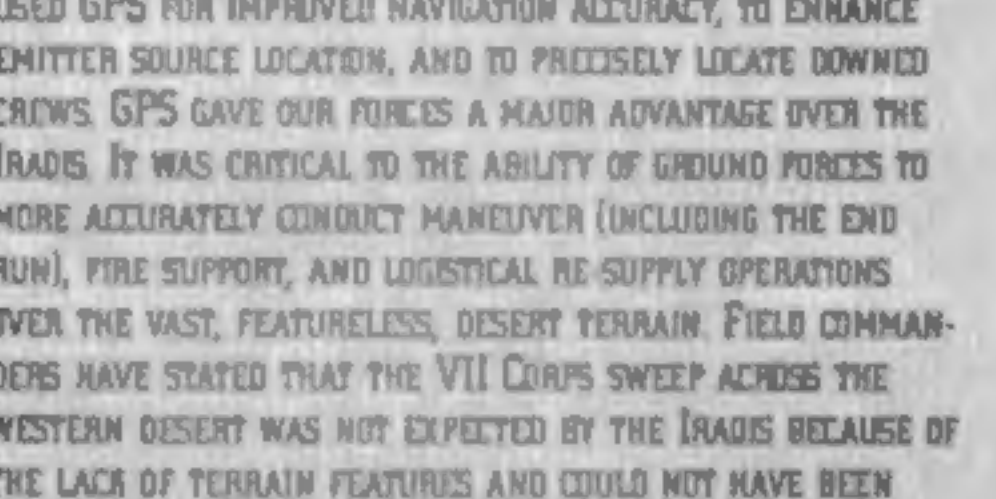
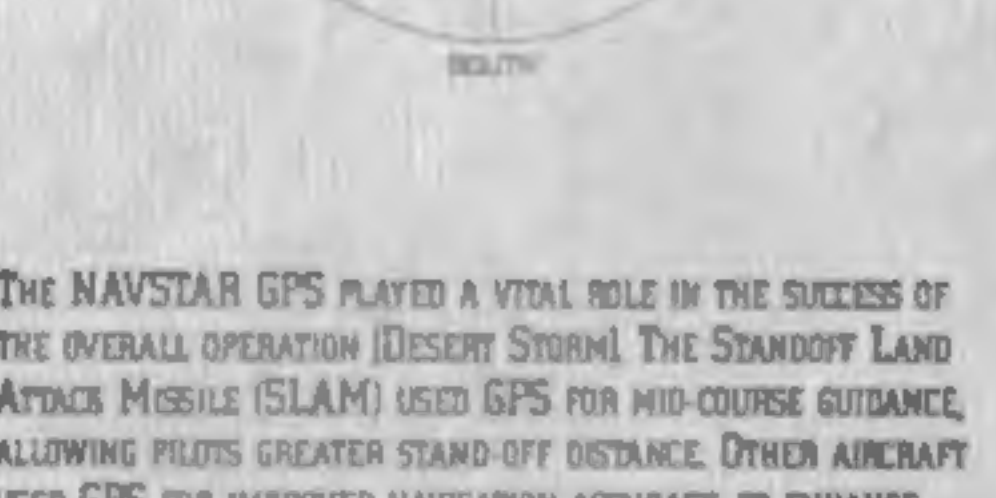
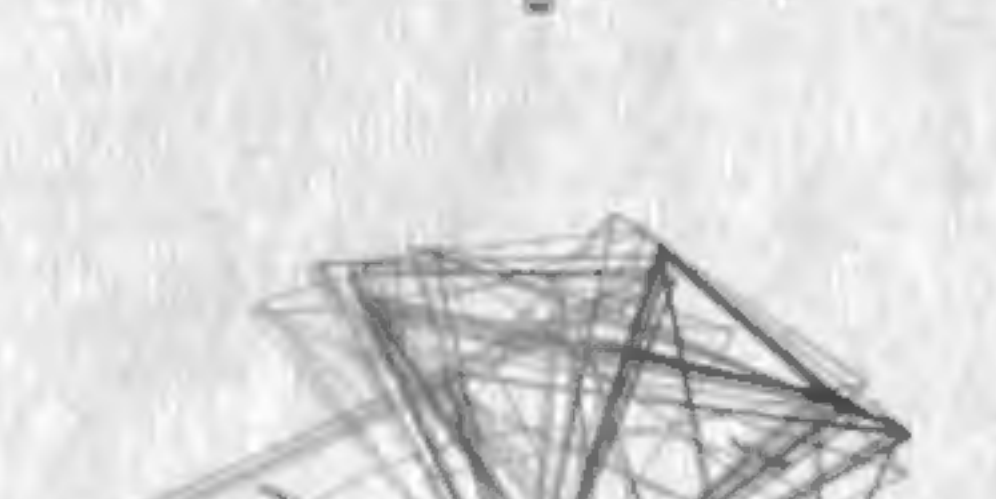
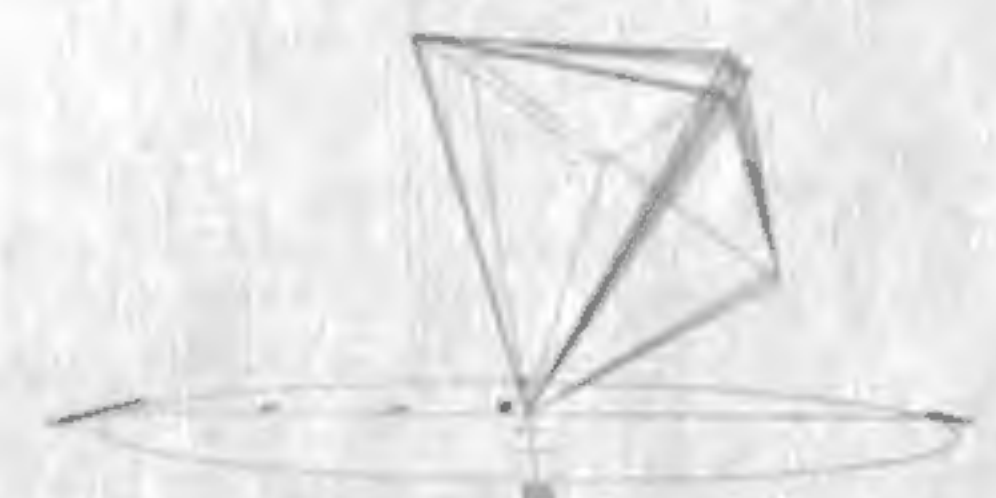
GPS PATHFINDER BASIC PLUS

This six-channel receiver, the top performer of Trimble's Pathfinder Basic series, allows you to collect more positions with greater accuracy, even under tree canopy. And its ability to continuously log up to 10,000 positions means you can work longer in the field without unnecessary downloading of data to your PC. You can even collect accurate data from a moving vehicle using the system's remote antenna. With no real shell carry case, all components are stored in one rugged package for easy transport. The GPS Pathfinder Basic Plus system includes comprehensive GPS management, data analysis and display software, so you can create maps or transfer the data to over 140 GIS databases.

FROM THE PRODUCT BROCHURE OF TRIMBLE NAVIGATION

THIS PROJECT SEEKS TO ANALYZE OR TO CHART THE CONSTITUTIVE DISTORTIONS UNDERGONE BY SPACE AND TIME IN MAPS AND ESPECIALLY IN NEW DIGITAL MEDIA TECHNOLOGIES. "YOU ARE HERE" OFFERS A CRITICAL ANALYSIS, IN THE FORM OF A RE-MAPPING, OF THE ASSUMPTIONS AND CONVENTIONS OF MAPPING: AN ATTEMPT TO DRAW THE LIMITS OF THE PROJECT OF MAPPING ITSELF, AND AT THE SAME TIME AN EFFORT TO CREATE NEW KINDS OF MAPS AND NEW KINDS OF SPACES BY REWRITING WHAT WE MIGHT CALL THE INVISIBLE LINES THAT MAPS USUALLY OMIT. NOT A MAPPING PROJECT, BUT A RE-MAPPING, A TRANSFORMATIVE CARTOGRAPHY OF THE VERY SPACE OF THE MAP ITSELF, OF THE ARCHITECTURE OF INFORMATION SPACE.

—LAURA KURGAN



FROM U.S. DEPARTMENT OF DEFENSE CONDUCT OF THE PERSONAL CONFLICT AND EXTREM REPORT TO CONGRESS, JULY 1991



### Highway of Death?

When the historic bridges of New York City had to be closed temporarily because they got too rusted, when major steam and water pipes began to burst regularly, when bullets and AIDS began to fly randomly and across, and when Clinton played his presidential campaign on education, health and wealth of the nation, the word that buzzed was infrastructure. Reaching the enormity of our social and urban crises, and inciting long-term visions needed for them, the word symbolized previous measures being only temporary and under-mined.

But now there is a new obsession in infrastructural thinking and that's the Information Superhighway. By replacing Internet, the military and scientific art that is being over-crowded with civilian travelers, the new infrastructure will outline a new set of social, ethnic and even sexual standards in a geography called cyberspace. No doubt the privatization of military technology will exceed the more immediate and short-term economic hope of converting military industry into civilian products, i.e., converting a tank factory to produce washing machines. The technology of cold war is the first global infrastructure, and is capable of constructing a new culture that could make all previous ones transparent or obsolete.

The post-cold war environment might make the empire of the military industrial complex, which has cost this country alone over trillion dollars, to find itself in a predicament. The military and hardware creating a giant future archeology big enough to keep the historians eternally busy. But its softer instruments and harder knowledge, capable of mandating the whole civilization in its ideological and physical domain, will fight for survival till the end. Its physical component, after all, is nothing more than temporary housing for it to perform end, mobile and strategic, it will find new encumbrances to add to its ever expanding appendix of rules, targets and ideology.

In short, the military is going through its own metamorphosis, from the caterpillar of national defense to the butterfly roaming over the civilian field. The population, once extras in the theater of physical destruction, now forms a household for service consumption in the age of immateriality—our physical consumption under thermo-nuclear heat turns to the annihilation of culture soaked with the radiation of info-consumption. This new infrastructure, a reflection and invention of military strategy, the very source of our global collapse, is an ironic yet more accurate account of George Bush's New World Order. It is about us—meeting with a set of satellites—and below us—carpeting underground and under-tenet with cables and detectors. It is preparing to technologically

THE NAVSTAR GPS PLAYED A VITAL ROLE IN THE SUCCESS OF THE OVERALL OPERATION (DESERT STORM). THE STANDOFF LAND ATTACK MISSILE (SLAM) USED GPS FOR MID-COURSE GUIDANCE, ALLOWING PILOTS GREATER STAND-OFF DISTANCE. OTHER AIRCRAFT USED GPS FOR IMPROVED NAVIGATION ACCURACY, TO ENHANCE EMISSION SOURCE LOCATION, AND TO PRECISELY LOCATE DOWNED CREWS. GPS GAVE OUR FORCES A MAJOR ADVANTAGE OVER THE IRAQIS. IT WAS CRITICAL TO THE ABILITY OF GROUND FORCES TO MORE ACCURATELY CONDUCT MANEUVERS (INCLUDING THE END RUH), FIRE SUPPORT, AND LOGISTICAL RE-SUPPLY OPERATIONS OVER THE VAST, FEATURELESS, DESERT TERRAIN. FIELD COMMANDERS HAVE STATED THAT THE VII CORPS SWEEP ACROSS THE WESTERN DESERT WAS NOT EXPECTED BY THE IRAQIS BECAUSE OF THE LACK OF TERRAIN FEATURES AND COULD NOT HAVE BEEN ACCOMPLISHED WITHOUT GPS. GPS ALSO ALLOWED PRECISE MAPPING AND MARKING OF MINIFIELDS BOTH AROUND AND AT SEA.

OPERATIONS IN THE DESERT CONFIRMED THE VALUE OF GPS NAVIGATION TO INDIVIDUAL TACTICAL UNITS—a REQUIREMENT WHICH HAD TO BE MET WITH RAPID ACQUISITION OF COMMERCIAL UNITS. GPS WAS ALSO SUSCEPTIBLE TO EXPLOITATION. ALTHOUGH THE IRAQIS WERE NOT ABLE TO DO SO, THERE IS A NEED TO CONTINUE TO PRESS TOWARD THE PRODUCTION, DISTRIBUTION, AND INTERACTION OF GPS RECEIVERS INVOLVING SELECTIVE AVAILABILITY (SA) DECRYPTION—a FUNCTION THAT ALLOWS DENIAL OF HIGHLY ACCURATE POSITION DATA TO NON-AUTHORIZED USERS—INTO OUR FORCE STRUCTURE. SMALL, MAN-PORTABLE AND VEHICLE MOUNTED RECEIVERS ARE ESPECIALLY NEEDED BY JOINT AND ALLIED FORCES TO SUCCESSFULLY NAVIGATE IN FEATURELESS TERRAIN AND IN ALL WEATHER CONDITIONS.

FROM U.S. DEPARTMENT OF DEFENSE CONDUCT OF THE PERSONAL CONFLICT AND EXTREM REPORT TO CONGRESS, JULY 1991

straight-jacket the civilization to a cultural Def-Con 4.

The infiltration of the military into cultural geography is deeper and more serious than the face value of its products, new shelf-mixing with domestic stuffs. Camouflaged as popular and consumable commodities, wrapped in the banality of post-modern/post-cold war imagery, they covertly subvert reality: fix on weekend, embattled and thirtied zones of civility, safety, dreams, plays, sexuality and other electric elevations of social architecture. It reaches for something beyond the boundary of an average daily life, and begins to kindle our fear and dream in the flames of technological materials promising to elevate us from mundane to phenomenal existence.

For instance, later this year, you can download, between your driver-side airbag and CD player, the Navigation/Information System in Oldsmobile's Eighty-Eight LSS for a chicken fee—relative to the Pentagon pricing—of \$2,000. Commercializing the Pentagon launched satellites of the Global Positioning System, will also be deployed by Sony Mobile Electronics and Elak Inc. on \$2,500 four-inch color monitors that will display a car's location within a detailed road map that comes with Ford's travel guides, parks, shops, restaurants, museums and other attractions. For the more proletarian drivers, \$600 gets you City Street by Road Scholar Software.

At the low tech personal surveillance end, a widely publicized string of child kidnappings, such as the plucking and murdering of Polly Klaas, right from her slumber party, has awakened a middle class fear. An array of electronic leashes for the purpose of monitoring the location of children are now on the market, such as Child Guardian, a beeper and receiver system with a range of about 200 feet; Beeper Kid, which automatically beeps when a child wanders 15 feet from a parent; Child Sentry, that allows "speak and listen" for up to 300 feet, and is equipped with arrow displays which guide parents to a lost child ranging up to 1,000 feet; and Word Watch, that sends designated messages up to one and a half miles away. At the upper echelon of the surveillance pyramid, the CIA is now considering international sales of spy satellite technology, and its images, for commercial use. Whether it is at the scale of the nation/state or family/guardianship, watching will be the new nexus of life and resource management.

The military is also tapping into the business of popular entertainment. The proposed \$33 billion merger of Telecommunications Inc. and Bell Atlantic means, not the creation of a more integrated entertainment service, but rather a centralized control of the accessories, roadways, service lanes and toll booths of the Information Highway (they will use you if you break down and kick you if you spend). The first month battle between Viacom Inc. and QVC Network Inc. for the corporate take over of Paramount, which includes Paramount Pictures, MTV, Show & Scharer Publishing, New York Knicks and Rangers, was headlined in the news as "A Forfeiture to Arms." Viacom winning this bid last week creates a powerful allegiance of industrial powers, that also includes Blockbuster Entertainment and Nynex. A corporate NATO, if you will, forms an industrial class that will authoritatively price all travel within the Information Highway; a creation of a virtual Detroit that ingested millions of vehicles into the other highways.

Low-tech virtual reality simulated battle rooms, developed by Q-Cor, are already operating in about 20 laser gun centers nationwide. Here players, at \$8 for 15 minutes, can get gear

that produce infra-red signals, and chestpads and backpacks that will record and score the hits and misses. Shopping sprees in electronic communication are turning the cyberspace into the next Walmart and, last December, space artifacts from cash poor Russia—their research vehicle left on the surface of moon, a space capsule, the first mining utensils used in space, cosmological telegram from Khrushchev to Yuri I. Gagarin, and other items—were sold for \$7 million at Sotheby's in New York. This auction, probably no different than the bid-

A tank, jeep, troop transport—if it moves on the ground, we can see it without risking the lives of our ground troops. Joint STARS, a noninvasive surveillance system, gave battle commanders in Operation Desert Storm a whole new way to look at conflict. It proved to be the most significant system of its kind. Much more than a simple magic box or breakthrough technology, it's the hard won product of nearly 50 years of electronic monitoring research.

## A PICTURE IS WORTH



## A THOUSAND TROOPS.

Pressed into service six years ahead of schedule, Joint STARS is proof that Grumman systems integration—software, hardware, and imaginative thinking—provides real solutions for real problems. Today, the demand for faster, better, and more affordable information is growing. That's a target more elusive than any tank, truck, or mobile missile launcher. Fortunately, Grumman has it in its sights. Technologies that make sense today.

ding for plutonium from de-commissioned warheads or other second generation weapons—wanted by the third world nations engaged in cultural, ethnic and religious struggles—marks the banality of military artifacts inside the once critical and counter-military dacha called the artworld. For the final footnote in the demonstration of advanced weaponry, let's not forget that the computer in front of you was first developed to guide ballistic missiles and not you.

You Are Here: Information Drift, a site-specific information installation by Laura Kurgan, uses the GPS to de-glyce StoreFront. Her "drawings with satellites" are intended to display the impact that the system can have on our social and architectural milieu. The digital mapping, from GPS via GIS (Global Information System), is different and independent from the traditional sense, for space made of actual monuments and real artifacts. These, built through the dream and events of the monstrous theater called life, in a giant procession called earth, are an accumulation of our historical, cultural and social identities that span millennia. The new space, purely technological and historic, is projected from machines, satellites and their associated instruments, and works instantaneously like a television which can be turned on or off. Of course once it's on, it's won't turn itself off. Like the television, it exists simultaneously with the real stories, and will impose itself over our historic and static spaces.

The danger of GPS is its ability to reconfigure the world. From beyond our reaches and sight this net of artificial stars, that replaces the real stars, generates the first revolution in cosmic mapping since Copernicus. The new universal space, based on the principle of relativity, systematically reduces all concrete points on earth to a set of interactive references. The monuments and cities, that historically marked our space and history, become inconsequential for the spatiality that demands only longitude, latitude and elevation. With the satellites turning earth into a digital ground, historical spaces become transparent under the space built on pixels instead of mortars. Capable of finding and orienting you at anywhere and anytime, the technology grants us the freedom to become lost for all time. Our gradual tendency toward nomadism is reclaimed, psychological or basic, relevant from the panoptic mapping of our world in the cartography of western and colonial visions—from the real estate of life and space.

In this context, Kurgan's *You Are Here: Information Drift* is about an access to the technology that can control us. As GPS disembarks from the military to the corporate, those who are denied it are those who will be controlled. A modern is the even to this first nation called information, "flaming" all geo-political boundaries—a post-modern parody of gods and knowledge.

On a recent ad from the Grumman Corporation, which appeared on the op-ed page of the New York Times, reads "A Picture is Worth a Thousand Troops." Will the Information Superhighway of Clinton/Gore become the Highway of Death for citizens like me?

Kiyong Park